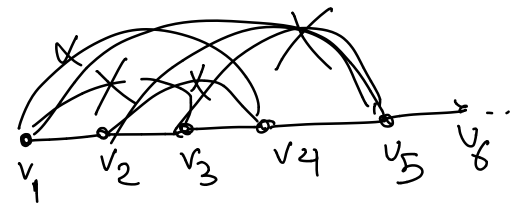
Claim: If G has no cycle $\Rightarrow$ it has a vertex of $\deg \leq 1$.

Pf: by contradiction!

Supp all vertices of G have $\deg \geq 2$.

Start with a vertex v_1

Say v_2 is a neighbor



$\deg(v_2) \geq 2 \Rightarrow v_2$ has a neighb v_3

$\deg(v_3) \geq 2 \Rightarrow v_3$ has a neighbor $\neq v_2$, it cannot be v_1 (get a cycle) So it is v_4.

$\deg(v_4) \geq 2 \Rightarrow v_4$ has a neig $\neq v_3$, cannot be v_1, v_2 (cycle) so it is v_5

and so on.

But this must stop BC. G has finitely many vertices. so at some point we get a cycle contradiction

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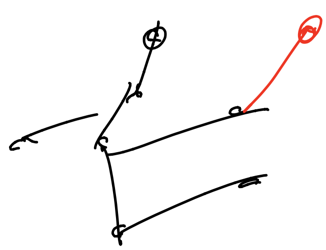
$$1 + \cdots + n = \frac{n(n+1)}{2}$$

Evry tree with n vertex has $n-1$ edge



Instead of adding delete